

REMARKS

Claims 1-4, 6-20 and 22-37 are pending in this application. By this Amendment, the specification and claims 3, 9-11, 13, 16-18, 25, 26, 29, 33, 36 and 37 are amended. Various amendments are for clarity and are unrelated to issues of patentability.

The Office Action objects to the drawings under 37 C.F.R. §1.83(a). The Office Action also objects to the disclosure because of informalities. More specifically, the Office Action appears to question the forward body bias discussed in the present application and with respect to the pending claims. Therefore, applicants are addressing the objections to the drawings and to the disclosure together. The following discussion is merely to answer questions/concerns in the Office Action. This discussion should not limit the scope of the pending claims.

As discussed in the present specification, a forward body bias may be applied to the transistors 302 and 312 (FIG. 5). This may be done based on a signal 345 applied to a gate of the transistor 340 and based on a voltage on the VCC signal line 310. Applying a forward body bias may make the transistors 302 and 312 stronger because of a lower threshold voltage V_t through a body effect.

It is respectfully submitted that FIG. 5 shows a forward body bias being applied to the transistors 302, 312 when the transistor 340 is connected to GROUND based on the signal 345 applied to the transistor 340 and based on a voltage on the VCC signal line 310. In other words, a signal line (unlabeled in FIG. 5) is coupled to the bodies of the transistors 302 and 312. A forward body bias may be applied to the transistors 302 and 312 based on the transistor 340 being turned ON (and thereby being coupled to GROUND) and based on

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the sources of each of the transistors 302 and 312 being coupled to a voltage on the VCC signal line 310. Both the voltage on the signal line 310 and the coupling to GROUND (via the transistor 340) are based on a mode or state of the memory device. Applicants respectfully submit that FIG. 5 adequately shows the claimed forward body bias.

Still further, the Office Action requests that the drawings show the features of claims 12 and 13 related to the NMOS transistor having a source and/or drain. After a further review of the specification, it appears that the labeling of the source and the drain of the transistor 340 may have been misidentified in the specification. Accordingly, the specification is amended on page 8 so as to correct this typographical error. In other words, the specification is amended on page 8 to state that the drain of the transistor 340 is coupled to the bodies of the transistors 302 and 312 and the source of the transistor 340 is coupled to GROUND. Dependent claim 2 also clearly supports the original intent to show that the source of the transistor 340 is coupled to the body of the transistors 302 and 312. Accordingly, the claimed features of claims 12 and 13 are adequately shown in Fig. 5.

In view of the above, applicants respectfully submit that the drawings satisfy 37 C.F.R. §1.83(a). Withdrawal of the objection to the drawings is respectfully requested.

The Office Action (on page 3) appears to state that a further explanation needs to be provided to describe how the description on page 8, lines 3-7 and page 9 can correspond to the description on page 9, lines 14-17 relating to the n-wells of the PMOS transistors 302 and 312 being shorted to GROUND when the transistor 340 is ON. Applicants respectfully submit that the sentence on page 9, lines 14-17 relates to embodiments of the present invention (such as an embodiment including a single transistor

340) may avoid requiring separate body bias generators for each of the transistors 302 and 312. In other words, embodiments may use only a single transistor 340 rather than two separate body bias generators since the n-wells of both the transistors 302 and 312 are shorted to GROUND through the transistor 340 when the transistor 340 is turned ON. Applicants respectfully submit that the Office Action appears to misunderstand the original intended meaning of the sentence in page 9, lines 14-17. In order to avoid any ambiguity, the specification is amended so as to more specifically clarify the originally intended meaning on page 9. Withdrawal of the objection to the disclosure is respectfully requested.

The Office Action (on page 3) also objects to claims 9-11, 13, 16-18, 24-26, 29, 33 and 36-37 because of informalities. The Office Action appears to state that there is no antecedent basis for "the two transistors" in various claims, such as independent claim 9. Applicants respectfully submit that there is adequate antecedent basis in independent claim 9 for the claimed features of the two transistors. See, for example, line 5 of claim 9 reciting "two transistors." In order to avoid any further ambiguity, independent claim 9 is amended to recite "two transistors of the at least four transistors." Similar amendments are made to dependent claims 13, 16, 17, 26, 29 and 36. Dependent claims 24, 25 and 37 are believed to be proper and satisfy 35 U.S.C. §112.

The Office Action also appears to state that a connective relationship of the two transistors should be provided. However, applicants respectfully assert that the claims are adequate and satisfy 35 U.S.C. §112. That is, independent claim 9, for example, recites a first SRAM memory cell having a configuration including at least four transistors. Further, independent claim 9 recites the supply voltage line to supply a first supply voltage to two

transistor of the at least four transistors of the first SRAM memory cell. Accordingly, a relationship of "the two transistors" is provided in independent claim 9. Applicants further believe that this analysis carries to the other dependent claims.

Further, each of dependent claims 10, 11 and 18 are amended to clarify the first and second modes. Applicants respectfully submit that dependent claim 33 is proper by reciting "a supply voltage." For at least the reasons set forth above, withdrawal of the objection to the claims is respectfully requested. Should Examiner Phan have any further questions and/or concerns relating to these claims, then Examiner Phan is requested to contact applicants' undersigned attorney.

The Office Action rejects claims 1-37 under 35 U.S.C. §103(a) by U.S. Patent 5,365,475 to Matsumura et al. (hereafter Matsumura) and U.S. Patent 4,567,577 to Oliver. The rejection is respectfully traversed with respect to the pending claims.

Independent claim 1 recites a first transistor pair a second transistor pair. Independent claim 1 also recites a supply voltage line to receive a first supply voltage based on a first mode of the memory device and to receive a second supply voltage based on a second mode of the memory device, the second supply voltage being different than the first supply voltage. Independent claim 1 further recites a bias transistor coupled to a body of one of the transistors of the first transistor pair and to a body of one of the transistors of the second transistor pair, the bias transistor to apply a forward body bias to the one transistor of the first transistor pair and to the one transistor of the second transistor pair based on a non-ACTIVE mode/state.

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The applied references do not teach or suggest at least these features of independent claim 1. The Office Action states that Matsumura does not teach or suggest the claimed bias generator as recited in independent claim 1 (as well as the claimed switching device recited in other claims). The Office Action then relies on Oliver's NMOS transistor 35 as corresponding to the claimed bias transistor. The Office Action cites Oliver's FIG. 3; however, applicants believe this is merely a typographical error and that the Office Action intends to address Oliver's FIG. 2. However, Oliver's transistor 35 does not teach or suggest to apply a forward body bias to one of the transistor 25 or 27. Furthermore, Oliver's transistor 35 does not teach or suggest to apply forward body bias to one of the transistors 25 or 27 based on a non-ACTIVE mode/state. Furthermore, the Office Action does not address the claimed features relating to a forward body bias being applied (such as being applied by the alleged transistor 35 in FIG. 2). The Office Action states that Oliver's transistor 35 is coupled to GROUND and to the body of transistors 25 and 27 in response to a WRITE line 38 being inactive. However, when this occurs, a voltage of VSS is applied to bodies of transistors 25 and 27 and the voltage VSS is the supply voltage to the transistors 25 and 27. Thus, a substantially same voltage (VSS) is applied to transistors 25 and 27. This does not correspond to a forward body bias as would be known to one skilled in the art. For at least the reasons as set forth above, the combination of Matsumura and Oliver do not teach or suggest all the features of independent claim 1.

Furthermore, there is no suggestion to combine Matsumura and Oliver as alleged in the Office Action. That is, Matsumura relates to different voltages (V1, V2) being applied to

the transistors 21 and 22. There is no suggestion for also applying a forward body bias (based on a signal applied to a body of the transistors 21 and 22). Therefore, there is no suggestion to modify Matsumura's features so as to include providing a varying potential to bodies of transistors such as alleged within Oliver. Rather, the only suggestion for the claimed features is provided in applicants' own specification. Accordingly, the Office Action clearly relies on impermissible hindsight by relying on applicants' own specification in order to provide any motivation to combine Matsumura and Oliver.

Furthermore, the Office Action has not specifically identified a reference that teaches or suggests the claimed bias transistor to apply a forward body bias to the one transistor of the first transistor pair and to the one transistor of the second transistor pair based on a non-ACTIVE mode/state as recited in independent claim 1. Thus, independent claim 1 defines patentable subject matter.

For at least the reasons set forth above, the applied references do not teach or suggest all the features of independent claim 1. Thus, independent claim 1 defines patentable subject matter.

Independent claim 9 also defines patentable subject matter for at least similar reasons. That is, independent claim 9 recites a switching device to apply a forward body bias to the two transistors of the cross-coupled inverter configuration of the first SRAM memory cell. For at least similar reasons as set forth above, the applied references do not teach or suggest at least these features. Thus, independent claim 9 defines patentable subject matter.

Independent claim 18 also defines patentable subject matter for at least similar reasons as set forth above. That is, independent claim 18 recites a switching device to apply a forward bias to transistors within the SRAM device based on the signal provided by the power control unit indicative of either the first mode or the second mode of the SRAM device. For at least similar reasons as set forth above, the applied references do not teach or suggest at least these features of independent claim 18. Accordingly, independent claim 18 defines patentable subject matter.

For at least the reasons set forth above, each of independent claims 1, 9 and 18 define patentable subject matter. Each of the dependent claims depends from one of the independent claims and therefore defines patentable subject matter at least for this reason. In addition, the dependent claims recite features that further and independently distinguish over the applied references. For example, dependent claim 6 relates to a STANDBY signal. However, Oliver's WRITE signal being inactive does not necessarily correspond to a STANDBY signal indicative of a STANDBY state of a memory device. This is, the present application clearly describes a STANDBY signal and a STANDBY state of a memory device. For similar reasons as stated above, one skilled in the art would clearly know that Oliver's WRITE signal, or lack of WRITE signal, does not necessarily correspond to a STANDBY signal indicative of a STANDBY state of a memory device. Rather, Oliver's WRITE signal merely relates to whether data is being written. The lack of a WRITE signal does not necessarily correspond to a STANDBY state of a memory device. Despite applicants previous arguments with respect to this issue, the Office Action still has not

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addressed this specific feature. Thus, dependent claim 6 defines patentable subject matter at least for this additional reason.

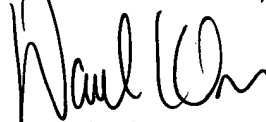
Each of dependent claims 7, 14, 15, 22-29 and 31-34 also relate to a STANDBY mode. Oliver does not teach or suggest these features for at least the reasons set forth above. Thus, each of these dependent claims defines patentable subject matter at least for this additional reason.

CONCLUSION

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Favorable consideration and prompt allowance of claims 1-4, 6-20 and 22-37 are earnestly solicited. If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney at the telephone number listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
FLESHNER & KIM, LLP



David C. Oren
Registration No. 38,694
Attorney for Intel Corporation

P.O. Box 221200
Chantilly, Virginia 20153-1200
(703) 766-3701 DCO/kah
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